VMware Cloud Foundation Upgrade Guide

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VMware Cloud Foundation 3.9

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Contents

About the VMware Cloud Foundation Upgrade Guide

1

The *VMware Cloud Foundation Upgrade Guide* describes how to upgrade Cloud Foundation. The information includes prerequisites, step-by-step configuration instructions, and suggested best practices.

Intended Audience

The *VMware Cloud Foundation Upgrade Guide* is intended for cloud architects, infrastructure administrators, and cloud administrators who are familiar with and want to use VMware software to quickly deploy and manage an SDDC. The information in this document is written for experienced data center system administrators who are familiar with:

- Concepts of virtualization, software-defined data centers, virtual infrastructure (VI), and virtual desktop infrastructure (VDI)

- VMware virtualization technologies, such as VMware ESXi™, the hypervisor

- Software-defined networking using VMware NSX®

- Software-defined storage using VMware vSAN™

- IP networks

Additionally, you should be familiar with these VMware software products, software components, and their features:

- VMware vSphere®

- VMware vCenter Server® and VMware vCenter Server® Appliance™

- VMware Platform Services Controller™

- VMware vRealize® Log Insight™

- VMware Horizon®

- VMware App Volumes™

Related Publications

The *VMware Cloud Foundation Planning and Preparation Guide* provides detailed information about the software, tools, and external services that are required for Cloud Foundation.

The *VMware Cloud Foundation Architecture and Deployment Guide* contains detailed information about a Cloud Foundation system, its components, and the network topology of a deployed system.

The *VMware Cloud Foundation Operations and Administration Guide* provides information about managing a VMware Cloud Foundation™ system, including managing the system's virtual infrastructure, managing users, configuring and deploying service offerings, and upgrading and monitoring the system.

Read the Supporting Documents

2

Before starting a Cloud Foundation upgrade, read the documents mentioned here.

Release Notes

Before beginning the upgrade, check the release notes. Known upgrade issues and workarounds are documented in the Cloud Foundation Release Notes. Reading the upgrade issues before you begin the upgrade process can save you time and effort. See https://docs.vmware.com/en/VMware-Cloud-Foundation/index.html.

Ports and Protocols

Read the Port Requirements section in the *VMware Cloud Foundation Planning and Preparation Guide* to ensure that the required ports are open before you begin an upgrade.

About Cloud Foundation Bundles

3

Lifecycle Management (LCM) enables you to perform the automated updates on the Cloud Foundation services (SDDC Manager and internal services) and the VMware software (vCenter Server, ESXi, NSX-T, and vRSCLM) in your environment. The update bundles can be downloaded and applied manually or scheduled within your maintenance window, allowing for flexibility in your application.

This chapter includes the following topics:

- Bundle Types
- Download Bundles
- View Bundle Download History

Bundle Types

Cloud Foundation includes two types of bundles.

Upgrade Bundles

An upgrade bundle contains bits to update the appropriate Cloud Foundation software components in your management domain or VI workload domain. In most cases, an upgrade bundle must be applied to the management domain before it can be applied to workload domains.

Some upgrade bundles are cumulative bundles. With a cumulative upgrade bundle, you can directly upgrade the appropriate software in your workload domain to the version contained in the cumulative bundle rather than applying sequential upgrades to reach the target version. Cumulative bundles are available only for vCenter Server, Platform Services Controller, and ESXi.

Note that you can apply a cumulative bundle to a workload domain only if the target release in the bundle is lower than or at the same version as the management domain. If the cumulative bundle is available for both the management domain and VI workload domains, you must apply it to the management domain before applying it to VI workload domains.

Install Bundles

If you have updated the management domain in your environment, you can download an install bundle with updated software bits for VI workload domains and vRealize suite components.

- A VI workload domain install bundle is used to deploy later versions of the software components rather than the versions in your original Cloud Foundation installation.

- A vRealize install bundle is used for deploying vRealize components.

Download Bundles

If LCM is configured to work with your My VMware account, LCM automatically polls the depot to access the bundles. You receive a notification when a bundle is available and can then download the bundle.

If you do not have internet connectivity, you can either use a proxy server to access the depot, or download the bundles manually.

Online Bundle Download

You can either download bundles through the SDDC Manager dashboard or through a proxy server.

Procedure

1   Download Bundles from SDDC Manager

When upgrade bundles are available for your environment, a message is displayed on the SDDC Manager Dashboard.

2   Download Bundles With a Proxy Server

If you do not have internet access, you can use a proxy server to download the LCM bundles. LCM only supports proxy servers that do not require authentication.

Download Bundles from SDDC Manager

When upgrade bundles are available for your environment, a message is displayed on the SDDC Manager Dashboard.

To download an install bundle, navigate to **Repository > Bundles** on the SDDC Manager Dashboard to view the available bundles. Then follow the instructions in step 4 below.

Prerequisites

Automatic polling of the manifest for bundles by SDDC Manager must be enabled (Default setting). If you have previously edited the application-prod.properties file on SDDC Manager VM to download upgrade bundles in an offline mode, you must edit it again before downloading bundles from SDDC Manager. Follow the steps below:

1   Using SSH, log in to the SDDC Manager VM with the following credentials:

Username: vcf

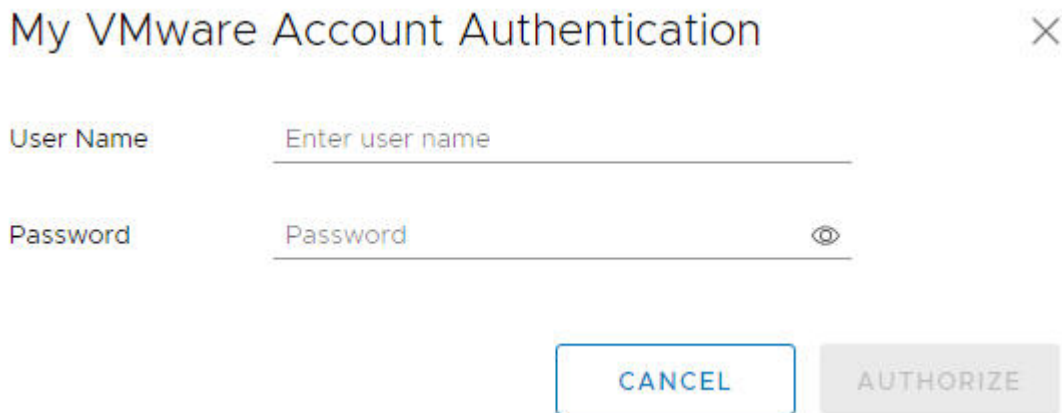Password: use the password specified in the deployment parameter sheet

2   Enter su to switch to the root user.

3   Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.

4   Set `lcm.core.enableManifestPolling=true`.

5   Restart LCM service with the command below:

```
systemctl restart lcm
```

Procedure

1   Log in to your My VMware Account.

   a   On the SDDC Manager Dashboard, click **Administration > Repository Settings**.

   b   Click **Authenticate**.

      The My VMware Account Authentication page appears.

   c   Type your user name and password.

   d   Click **Authorize**.

2   View available bundles by navigating to **Repository > Bundles** on the SDDC Manager Dashboard.

The Bundles page displays the bundles available for download. The Bundle Details section displays the bundle version and release date.

If the bundle can be applied right away, the Bundle Details column displays the workload domains to which the bundle needs to be applied to, and the Availability column says Available. If another bundle needs to be applied before a particular bundle, the Availability field displays Future.

3   To view more information about the bundle, click **View Details**.

The Bundle Details section displays the bundle version, release date, and additional details about the bundle.

4   Click **Exit Details**.

5   Specify when to download the bundle.

- Click **Download Now** to start the download immediately.

- Click **Schedule Download** to set the date and time for the bundle download.

Results

The Download Status section on the Bundles page displays the date and time at which the bundle download has been scheduled. When the download begins, the status bar displays the download progress.

Download Bundles With a Proxy Server

If you do not have internet access, you can use a proxy server to download the LCM bundles. LCM only supports proxy servers that do not require authentication.

Procedure

1   Using SSH, log in to the SDDC Manager VM with the user name `vcf` and password you specified in the deployment parameter sheet.

2   Type `su` to switch to the root account.

3   Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.

4   Update the following lines to the end of the file:

```
lcm.depot.adapter.proxyEnabled=true
lcm.depot.adapter.proxyHost=proxy IP address
lcm.depot.adapter.proxyPort=proxy port
```

5   Save and close the file.

6　Restart the LCM server by typing the following command in the console window:

```
systemctl restart lcm
```

7　Wait for 5 minutes and then download the bundles.

Offline Bundle Download for VMware Cloud Foundation

LCM polls the VMware depot to access update bundles. If you do not have internet connectivity in your Cloud Foundation system, you can use the Bundle Transfer utility to manually download the bundles from the depot on your local computer and then upload them to SDDC Manager.

Prerequisites

Ensure you have access to a Windows or Linux computer with internet connectivity for downloading the bundles. The computer must have Java 8 or later.

Procedure

1　Using SSH, log in to the SDDC Manager VM with the user name vcf and password you specified in the deployment parameter sheet.

2　Change directories:

```
cd /opt/vmware/vcf/lcm/lcm-tools/bin
```

3　Download the required bundles using one of the commands below. For help on available options, type the following:

/opt/vmware/vcf/lcm/lcm-tools/bin/lcm-bundle-transfer-util --help

- Download all bundles for a release.

  ./lcm-bundle-transfer-util -download -output Directory *Output-Dir* –depotUser *Username* –p *releaseNumber*

- Download a single bundle.

  ./lcm-bundle-transfer-util –download –outputDirectory *Output-Dir* –depotUser *Username* –bundle *bundle-name*

- Download bundles by type (install or patch).

  ./lcm-bundle-transfer-util –download –outputDirectory *Output-Dir* –depotUser – imageType INSTALL|PATCH

- Generate a marker file with all bundles that apply based on the software version in your environment.

  ./lcm-bundle-transfer-util --generateMarker

The marker file (named `markerFile`) is a JSON file that contains information on the current software versions running on SDDC Manager. It also contains the bundles IDs for bundles that were downloaded before this file was generated. The markerFile.md5 contains the checksum for the markerFile. The output contains the directory where the marker file is generated.

4   Copy the `/opt/vmware/vcf/lcm/lcm-tools` directory, and the downloaded bundles (or marker file) from step 3 to a computer with internet access.

The `/opt/vmware/vcf/lcm/lcm-tools` directory includes the bundle transfer utility required for the next step.

5   On the computer with internet access, run the following command.

```
./lcm-bundle-transfer-util -download
         -outputDirectory ${absolute-path-output-dir}
         -depotUser ${depotUser}
         -markerFile ${absolute-path-markerFile}
         -markerMd5File ${absolute-path-markerFile.md5} -p ${vcf product version}
```

where

absolute-path-output-dir	Path to the directory where the bundle files are to be downloaded. This directory folder must have 777 permissions. If you do not specify the download directory, bundles are downloaded to the default directory with 777 permissions.
depotUser	User name for myVMware depot. You are prompted to enter the depot user password. If there are any special characters in the password, specify the password within single quotes.
markerFile	Absolute path to the marker file, as generated in the above step. This is required only if you generated a marker file in step 3. If you do not specify the path to the marker file, all update bundles on the depot are downloaded.
markerMd5File	Absolute path to the marker MD5 checksum file, as generated in the above step.

The utility generates a delta file (`deltaFileDownloaded`) in the download directory based on the software versions in the marker file and the update bundles available on the depot. The applicable bundles identified in the delta file are downloaded. Download progress for each bundle is displayed. Initially, only the SDDC Manager bundle will be available.

6   Copy the update bundle directory from the external computer to the SDDC Manager VM.

For example:

```
scp -pr /root/vcf372tovcf38Bundle vcf@SDDC_MANAGER_IP:/nfs/vmware/vcf/nfs-mount/
```

The scp command in the example above creates a directory named `vcf372tovcf38Bundle` in the `/nfs/vmware/vcf/nfs-mount/` directory.

7   In the SDDC Manager VM, change the ownership and permissions of the uploaded bundle.

```
chmod -R 0777 /nfs/vmware/vcf/nfs-mount/vcf372tovcf38Bundle
```

8 In the SDDC Manager VM, upload the bundle files to the internal LCM repository. You must upload the upgrade and install bundles.

```
cd /opt/vmware/vcf/lcm/lcm-tools/bin
./lcm-bundle-transfer-util -upload -bundleDirectory ${absolute-path-output-dir}
```

where *absolute-path-output-dir* is the directory where the bundle files have been uploaded, or `/nfs/vmware/vcf/nfs-mount/vcf372tovcf38Bundle` as shown in the previous step.

The utility uploads the bundles specified in the `deltaFileDownloaded` file. The console displays upload status for each bundle. Wait for all bundles to be uploaded before proceeding with the upgrade.

Download Specific Bundles

Bundle transfer utility is a command line tool which is specifically used to identify the bundles applicable to the current domain, download the bundles using the credentials, and upload them to SDDC Manager.

Starting from Cloud Foundation version 3.7.1, the additional options have been introduced for the bundle transfer utility tool.

The bundle transfer utility tool includes the following options.

- You can selectively download bundles based on the product version:

  a Display the list of the applicable bundles along with the product version using the following command.

  ```
  ./lcm-bundle-transfer-util --depotUser ${depotUser} --listBundles --productVersion $
  {product_version}
   (OR)
  ./lcm-bundle-transfer-util -du ${depotUser} -l -p ${product_version}
  ```

  For example:

  ```
  Sample applicable bundle list
  Below are applicable bundles:

  ********************************************************************************************
  Bundle              Product Version      Bundle Size (in MB)   Patch/Install Softwares
  ********************************************************************************************
  bundle-10668        3.7.1.0              432.0 MB              ESX_HOST-6.7.0-12871208-PATCH
  ********************************************************************************************
  ```

  b Download the applicable bundles based on the selected product version.

  ```
  ./lcm-bundle-transfer-util --download --outputDirectory ${absolute-path-output-dir}
   --depotUser ${depotUser} --productVersion ${product_version}
   (OR)
   ./lcm-bundle-transfer-util -d -op ${absolute-path-output-dir} -du ${depotUser} -p $
  {product_version}
  ```

For example, to download all the bundles released for the 3.7.1 version, run the tool as follows:

```
./lcm-bundle-transfer-util --download --depotUser 'test_depot_user@vmware.com'
--outputDirectory /Users/${userName}/downloadedBundle -p 3.7.1.0
```

c   Upload all the bundles specific to the product version.

```
./lcm-bundle-transfer-util --upload --bundleDirectory ${absolute-path-bundles-dir}
 --productVersion ${product_version}

(OR)

./lcm-bundle-transfer-util --upload --bundleDirectory ${absolute-path-bundles-dir}
 -p ${product_version}
```

For example, to upload all bundles released for the 3.7.1.0 version, run the tool as follows:

```
./lcm-bundle-transfer-util --upload --bundleDirectory
/nfs/vmware/vcf/nfs-mount/downloadedBundles -p 3.7.1.0
```

- You can download only a single applicable bundle.

a   Download the single bundle.

```
./lcm-bundle-transfer-util --download --outputDirectory ${absolute-path-output-dir}
 --depotUser ${depotUser} --bundle ${bundle_name}
(OR)

./lcm-bundle-transfer-util --download --outputDirectory ${absolute-path-output-dir}
 --depotUser ${depotUser} -b ${bundle_name}
```

For example:

```
./lcm-bundle-transfer-util --download --outputDirectory
/nfs/vmware/vcf/nfs-mount/downloadedBundles
 --depotUser 'test_depot_user@vmware.com' --bundle bundle-8203
```

b   Upload the single bundle to LCM.

```
./lcm-bundle-transfer-util --upload --bundleDirectory ${absolute-path-bundles-dir}
 --bundle ${bundle_name}
(OR)

./lcm-bundle-transfer-util --upload --bundleDirectory ${absolute-path-bundles-dir}
 -b ${bundle_name}
```

For example:

```
./lcm-bundle-transfer-util --upload --bundleDirectory
/nfs/vmware/vcf/nfs-mount/downloadedBundles -b bundle-8203
```

Note The above additional options can be run only on the SDDC Manager machines. For these options on SDDC Manager, you should always run the tool as `vcf` user.

View Bundle Download History

The Bundle Download History page displays all bundles that have been downloaded.

Procedure

◆ In the SDDC Manager Dashboard, click **Repository > Download History**.

All downloaded bundles are displayed. Click **View Details** to see bundle metadata details.

Upgrade Cloud Foundation to 3.9.1

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Cloud Foundation upgrades are sequential. So in order to upgrade to a release, your environment must be on the version before that release.

Upgrades are applied on a workload domain basis. The management domain contains the core infrastructure, so you must upgrade the management domain before upgrading the other workload domains. You must upgrade all required components to keep your system in an optimum state.

The following components need to be upgraded for Cloud Foundation version 3.9.1 in the order in which they have been documented.

- Cloud Foundation software
- NSX for vSphere
- vCenter Server and Platform Service Controllers
- ESXi
- Horizon 7

  Upgrading Horizon 7 workload domains is a manual process.

This chapter includes the following topics:

- Upgrade Prequisites for 3.9.1
- Perform Upgrade Precheck for 3.9.1
- Upgrade the Management Domain to 3.10
- Migrate vRealize Products to Application Virtual Networks
- Upgrade NSX for vSphere Workload Domains to 3.9.1
- Upgrade Horizon7 Workload Domains to 3.9.1

Upgrade Prequisites for 3.9.1

Ensure that the following prerequisites are met before starting an upgrade.

1   Take a backup of the SDDC Manager VM. This is required since the SDDC Manager VM will be rebooted during the upgrade.

2   Take a snapshot of each VM in your environment.

3   Do not run any domain operations while an upgrade is in progress. Domain operations are creating a new VI domain, adding hosts to a cluster or adding a cluster to a workload domain, and removing clusters or hosts from a workload domain.

4   You must have downloaded the upgrade bundles. See Download Bundles.

5   Ensure that there are no failed workflows in your system and none of the Cloud Foundation resources are in activating or error state. If any of these conditions are true, contact VMware Support before starting the upgrade.

6   Confirm that the passwords for all Cloud Foundation components are valid.

Perform Upgrade Precheck for 3.9.1

You must perform a precheck before applying each bundle to ensure that your environment is ready for the upgrade. For an ESXi bundle, the system performs a bundle level precheck in addition to the environment precheck.

The ESXi bundle precheck validates the following.

- Custom ISO is compatible with your environment.

- Custom ISO size is smaller than the boot partition size.

- Third party VIBs are compatible with the environent.

Procedure

1   Navigate to the Updates/Patches tab of the management domain or workload domain where you need to apply the bundle.
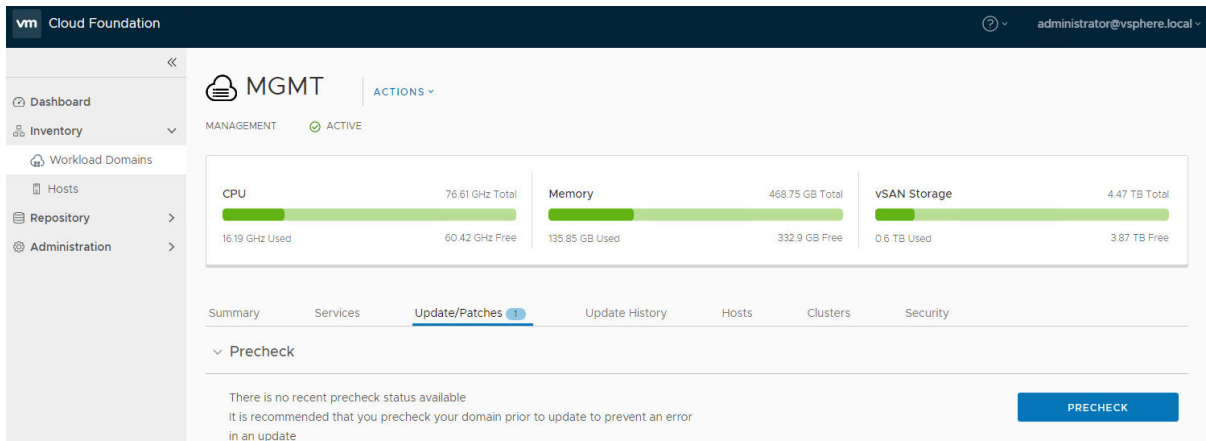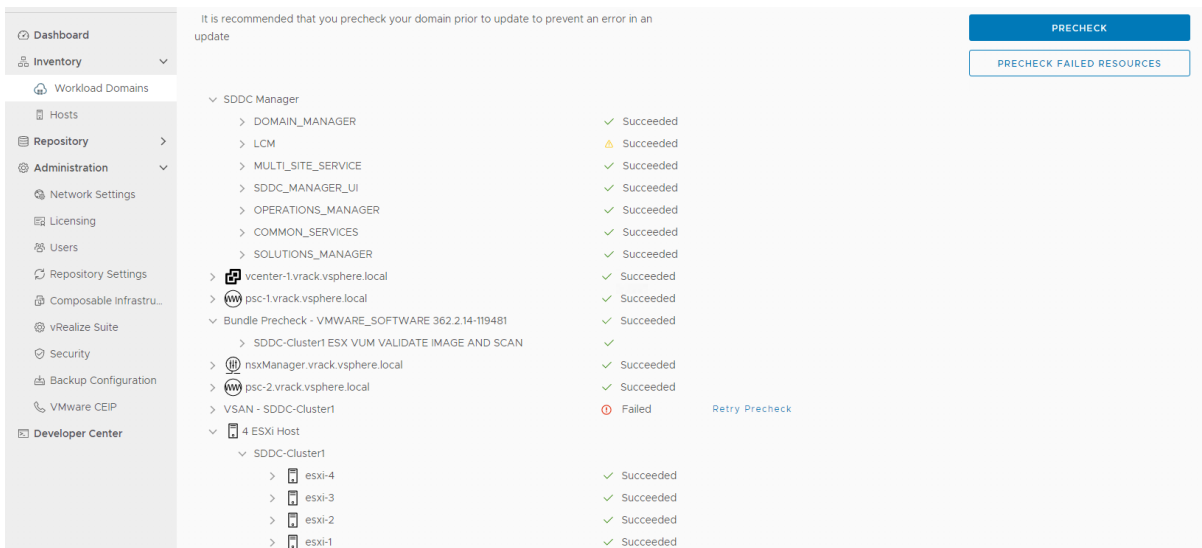
2   Click **Precheck** to validate that the environment is ready to be upgraded. If you run the precheck before upgrading ESXi and there are multiple ESXi bundles available (for example, during a cumulative upgrade), a dialog box appears asking you to select the bundle that you want to validate during the precheck.

Once the precheck begins, a message appears indicating the time at which the precheck was started.
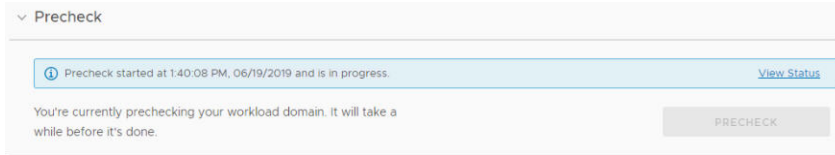
3   Click **View Status** to see detailed tasks and their status.

4   To see details for a task, click the Expand arrow.

If a precheck task failed, fix the issue, and click **Retry Precheck** to run the task again. You can also click **Precheck Failed Resources** to retry all failed tasks.

If ESXi hosts display a driver incompatibility issue, perform the following steps:

a   Identify the controller with the HCL issue.

b   For the given controller, identify the supported driver and firmware versions on the source and target ESXi versions.

c   Upgrade the firmware, if required.

d   Upgrade the driver manually on the ESXi host and retry the task at which the upgrade failed.

For information on updating passwords, see Updating SDDC Manager Passwords.

Results

The precheck result is displayed at the top of the Upgrade Precheck Details window. If you click **Exit Details**, the precheck result is displayed at the top of the Precheck section in the Updates/Patches tab.

Ensure that the precheck results are green before proceeding. A failed precheck may cause the update to fail.

Upgrade the Management Domain to 3.10

You must upgrade the management domain before upgrading workload domains in your environment.

Upgrade Cloud Foundation Software to 3.9.1

You upgrade Cloud Foundation by applying three bundles to the management domain

The bundles upgrade the following components:

■ The VMware Cloud Foundation Update 3.9.0.1 bundle upgrades the SDDC Manager UI to 3.9.0.1. This is an interim step for upgrading to 3.9.1.

■ The Cloud Foundation upgrade bundle upgrades LCM and Cloud Foundation services on SDDC Manager VM.

■ The Configuration Drift bundle applies configuration drift on the software componenets in the management domain.

Apply Cloud Foundation Update Bundle 1

The Cloud Foundation Update 1 bundle upgrades the SDDC Manager UI to 3.9.0.1. This is an interim step for upgrading to 3.9.1.

Prerequisites

Download the bundle. See Download Bundles.

Procedure

1 Navigate to the Updates/Patches tab of the management domain.

2 Run the upgrade precheck. See Perform Upgrade Precheck.

3 In the Available Updates section, click **Update Now** or **Schedule Update** and select the date and time for the bundle to be applied.

The Cloud Foundation Update Status window displays the components that will be upgraded and the upgrade status. Click **View Update Activity** to view the detailed tasks.

After the upgrade is completed, a green bar with a check mark is displayed.

4 Click **Finish**.

Apply the VMware Cloud Foundation Update Bundle 2

The Cloud Foundation Update bundle 2 upgrades LCM and Cloud Foundation services to 3.9.1.

Download the bundle. See Download Bundles.

Procedure

1 Navigate to the Updates/Patches tab of the management domain.

2 Run the upgrade precheck. See Perform Upgrade Precheck.

3 In the Available Updates section, click **Update Now** or **Schedule Update** and select the date and time for the bundle to be applied.

4 Review the information displayed in the Upgrade Information dialog box and select the checkboxes to confirm that you have completed the listed prerequisites.

5 Click **Confirm**.

- If you had clicked **Update Now** in step 3, the upgrade starts.

- If you had clicked **Schedule Update**, you can select the date and time for the bundle to be applied.

The Cloud Foundation Update Status window displays the components that will be upgraded and the upgrade status. Click **View Update Activity** to view the detailed tasks. The SDDC Manager VM is rebooted during the upgrade. Do not refresh the browser while the upgrade is in progress.

After the upgrade is completed, a green bar with a check mark is displayed.

6 Click **Finish**.

Apply Configuration Drift Bundle for 3.9.1

The configuration drift bundle applies the configuration required for Cloud Foundation version 3.9.1.

Prerequisites

You must have downloaded the configuration drift bundle. See Download Bundles.

Procedure

1 Navigate to the Updates/Patches tab of the management domain.

2 Run the upgrade precheck. See Perform Upgrade Precheck.

3 In the Available Updates section, click **Update Now** or **Schedule Update** for the bundle and click the date and time for the bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade NSX for vSphere

The NSX for vSphere bundle upgrades NSX for vSphere on the management domain and the workload domain.

Prerequisites

The NSX for vSphere bundle must have been downloaded. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the management domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   In the Available Updates section, click **Update Now** or **Schedule Update** for the NSX for vSphere bundle and click the date and time for the bundle to be applied.

    After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade vCenter Server and Platform Services Controllers

The vCenter bundle upgrades vCenter and Platform Services Controllers on the management domain and the workload domain.

Prerequisites

Download the upgrade bundle. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the management domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   In the Available Updates section, click **Update Now** or **Schedule Update** for the vCenter bundle and click the date and time for the bundle to be applied.

    After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade ESXi for 3.9.1

The ESXi bundle upgrades ESXi on the domain.

If you want to skip any hosts while applying an ESXi update to the management domain or a VI workload domain, you must add these hosts to the `application-prod.properties` file before you begin the update. See Chapter 8 Skip Hosts During ESXi Update.

To upgrade an ESXi host at a cluster level, see Chapter 6 Upgrade ESXi by Cluster.

Prerequisites

The ESXi bundle must have been downloaded. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   In the Available Updates section, click **Update Now** or **Schedule Update** for the ESXi bundle and click the date and time for the bundle to be applied.

> After the upgrade is completed, a green bar with a check mark is displayed.

Migrate vRealize Products to Application Virtual Networks

After you upgrade Cloud Foundation to 3.9.1, you can migrate the vRealize products in your environment to use Application Virtual Networks (AVNs). AVNs provide benefits for portability and failover for planned migration or disaster recovery.

New VMware Cloud Foundation 3.9.1 installations use NSX Data Center for vSphere to create VXLAN-backed networks, called application virtual networks (AVNs), and deploy vRealize Suite components to these AVNs. Cloud Foundation 3.9 deployed vRealize Suite components on a VLAN-backed distributed port group. After upgrading to 3.9.1, Cloud Foundation continues to use VLAN-backed distributed port groups for vRealize Suite components.

If you want to migrate vRealize Suite components to AVNs, contact VMware Support.

Upgrade NSX for vSphere Workload Domains to 3.9.1

Upgrade each NSX for vSphere VI workload domain in your environment using the procedure described here.

The components within each workload domain are upgraded in the following order:

1   NSX for vSphere

2   vCenter Server

3   ESXi

Upgrade NSX for vSphere

The NSX for vSphere bundle upgrades NSX for vSphere on the management domain and the workload domain.

Prerequisites

The NSX for vSphere bundle must have been downloaded. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the management domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   In the Available Updates section, click **Update Now** or **Schedule Update** for the NSX for vSphere bundle and click the date and time for the bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade vCenter Server and Platform Services Controllers

The vCenter bundle upgrades vCenter and Platform Services Controllers on the management domain and the workload domain.

Prerequisites

Download the upgrade bundle. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the management domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   In the Available Updates section, click **Update Now** or **Schedule Update** for the vCenter bundle and click the date and time for the bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade ESXi for 3.9.1

The ESXi bundle upgrades ESXi on the domain.

If you want to skip any hosts while applying an ESXi update to the management domain or a VI workload domain, you must add these hosts to the `application-prod.properties` file before you begin the update. See Chapter 8 Skip Hosts During ESXi Update.

To upgrade an ESXi host at a cluster level, see Chapter 6 Upgrade ESXi by Cluster.

Prerequisites

The ESXi bundle must have been downloaded. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   In the Available Updates section, click **Update Now** or **Schedule Update** for the ESXi bundle and click the date and time for the bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade Horizon7 Workload Domains to 3.9.1

Upgrading Horizon7 workload domains is a manual process.

Upgrade Cloud Foundation to 3.9

<div style="text-align: right">5</div>

Cloud Foundation upgrades are sequential. So in order to upgrade to a release, your environment must be on the version before that release.

Upgrades are applied on a workload domain basis. The management domain contains the core infrastructure, so you must upgrade the management domain before upgrading the other workload domains. You must upgrade all required components to keep your system in an optimum state.

The following components need to be upgraded for Cloud Foundation version 3.9 in the order in which they have been documented.

- Cloud Foundation software

- NSX-T workload domains

- PKS workload domains

    PKS upgrade is a manual process.

Upgrade Prerequisites for 3.9

Ensure that the following prerequisites are met before starting an upgrade.

1 Take a backup of the SDDC Manager VM.

2 Take a snapshot of each VM in your environment.

3 Do not run any domain operations while an upgrade is in progress. Domain operations are creating a new VI domain, adding hosts to a cluster or adding a cluster to a workload domain, and removing clusters or hosts from a workload domain.

4 You must have downloaded the upgrade bundles. See Download Bundles.

5 Ensure that there are no failed workflows in your system and none of the Cloud Foundation resources are in activating or error state. If any of these conditions are true, contact VMware Support before starting the upgrade.

Perform Upgrade Precheck

You must perform a precheck before applying any bundle to ensure that your system is ready for the upgrade.

Procedure

1   Navigate to the Updates/Patches tab of the management domain or workload domain where you need to apply the bundle.
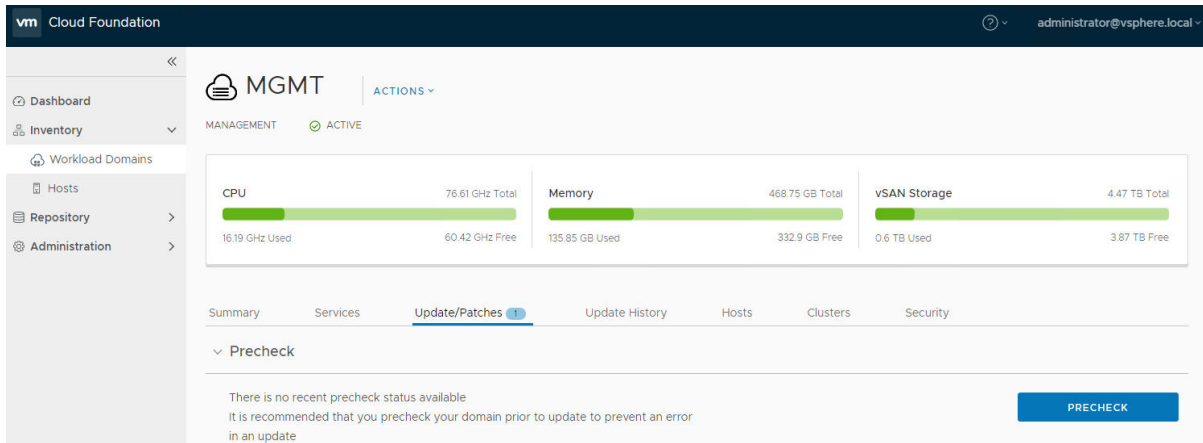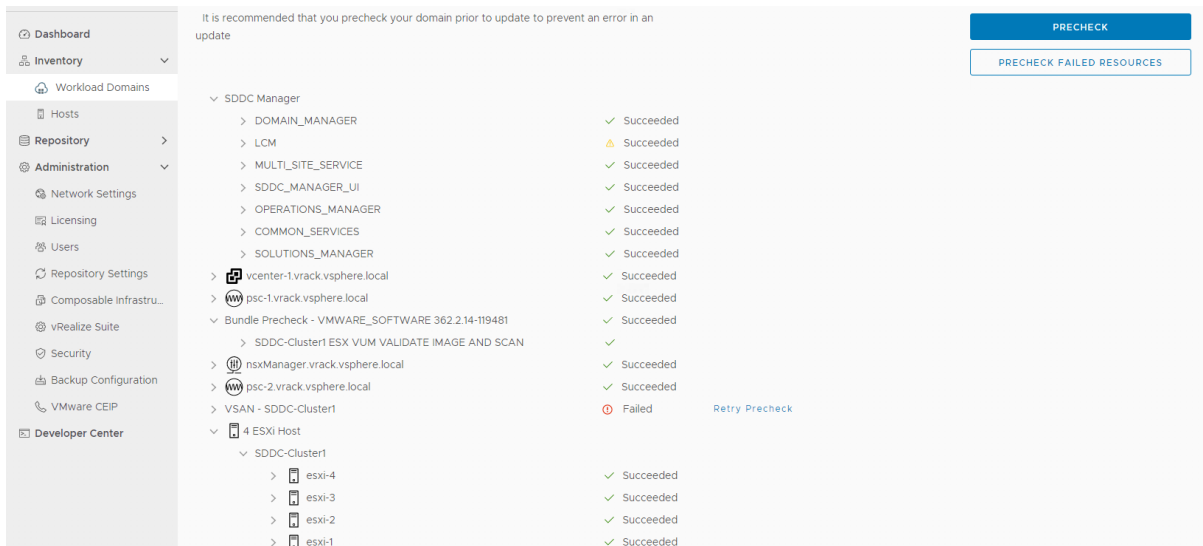

2   Click **Precheck** to validate that the environment is ready to be upgraded.

A message appears indicating the time at which the precheck was started.
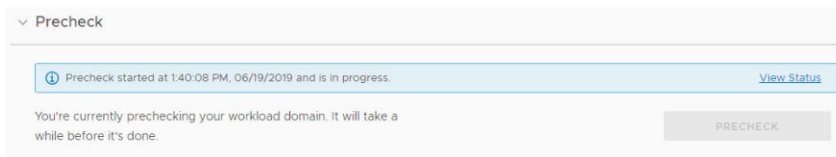
3   Click **View Status** to see detailed tasks and their status.

4   To see details for a task, click the Expand arrow.

If a precheck task failed, fix the issue, and click **Retry Precheck** to run the task again. You can also click **Precheck Failed Resources** to retry all failed tasks.

If ESXi hosts display a driver incompatibility issue, perform the following steps:

a   Identify the controller with the HCL issue.

b   For the given controller, identify the supported driver and firmware versions on the source and target ESXi versions.

c   Upgrade the firmware, if required.

d   Upgrade the driver manually on the ESXi host and retry the task at which the upgrade failed.

Results

The precheck result is displayed at the top of the Upgrade Precheck Details window. If you click **Exit Details**, the precheck result is displayed at the top of the Precheck section in the Updates/Patches tab.

Ensure that the precheck results are green before proceeding. A failed precheck may cause the update to fail.

Upgrade the Management Domain

You must upgrade the management domain before upgrading any workload domains in your environment.

Procedure

1   Upgrade Cloud Foundation Software

      You upgrade Cloud Foundation by applying two bundles to the management domain.

Upgrade Cloud Foundation Software

You upgrade Cloud Foundation by applying two bundles to the management domain.

The two bundles upgrade the following components:

- Cloud Foundation upgrade bundle: Upgrade Cloud Foundation services on SDDC Manager VM.

- Configuration Drift Bundle: Applies configuration drift.

Apply the Cloud Foundation Upgrade Bundle

The Cloud Foundation upgrade bundle upgrades Cloud Foundation services on the SDDC Manager VM.

Prerequisites

Download the bundle. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the management domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   The Available Updates section displays the bundle that you downloaded before starting the upgrade.

4   Click **Update Now** or **Schedule Update** and select the date and time for the bundle to be applied.

      The images are examples and may not reflect the correct version.

Schedule Update

The bundle will be scheduled based on your selected date and time.

Date   MM/DD/YYYY

Time   09 ⌄   36 ⌄   08 ⌄   AM ⌄

CANCEL   SCHEDULE

The Cloud Foundation Update Status window displays the components that will be upgraded and the upgrade status. Click **View Update Activity** to view the detailed tasks.

Update Activity

Activity Time	↓	Activity
6/19/19, 9:36 AM		Upgrade element resourceType: LCM resourceId: 083d879f-0a0b-45c1-a74f-fd4cb25e6fb1 recorded stage VCF_SERVICE_UPGRADE
6/19/19, 9:36 AM		LCM upgrade is accepted
6/19/19, 9:36 AM		Upgrade element resourceType: LCM resourceId: 083d879f-0a0b-45c1-a74f-fd4cb25e6fb1 recorded stage VCF_SERVICE_UPGRADE_INITIATION
6/19/19, 9:36 AM		LCM upgrade pre-validation successful
6/19/19, 9:36 AM		Upgrade element resourceType: LCM resourceId: 083d879f-0a0b-45c1-a74f-fd4cb25e6fb1 recorded stage VCF_SERVICE_UPGRADE_PRE_VALIDATION
6/19/19, 9:36 AM		Upgrade element resourceType: LCM resourceId: 083d879f-0a0b-45c1-a74f-fd4cb25e6fb1 recorded all stages ["VCF_SERVICE_UPGRADE_PRE_VALIDAT "VCF_SERVICE_UPGRADE_INITIATION", "VCF_SERVICE_UPGRADE", "VCF_SERVICE_UPGRADE_POST_VALIDATION"]
6/19/19, 9:36 AM		Upgrade element resourceType: LCM resourceId: 083d879f-0a0b-45c1-a74f-fd4cb25e6fb1 status changed to INPROGRESS
6/19/19, 9:36 AM		Upgrade status changed to INPROGRESS
6/19/19, 9:35 AM		Upgrade scheduled

1 - 9 of 9 Logs

After the upgrade is completed, a green bar with a check mark is displayed.

Back to Virtual Infrastructure Workload Domains

MGMT   ACTIONS ⌄

MANAGEMENT   ⊘ ACTIVE

CPU	76.61 GHz Total	Memory	468.75 GB Total	vSAN Storage	4.47 TB Total
21.12 GHz Used	55.49 GHz Free	127.03 GB Used	341.72 GB Free	0.84 TB Used	3.63 TB Free

Summary   Services   Update/Patches   **Update History**   Hosts   Clusters   Security

✕ Exit Status

VMware Cloud Foundation Update 3.8.0.0

Released 06/27/2019 273 MB

VCF Update Bundle - LCM,SDDC_MANAGER_UI

⊘ Update applied at 4:46 AM, 06/27/2019 - Elapsed Time : 05 minutes 35 seconds

VIEW UPDATE ACTIVITY

> LCM	✓ Updated 🕐	3.7.2-RELEASE-13773680 →	3.8.0-RELEASE-14039482
> SDDC MANAGER UI	✓ Updated 🕐	3.7.2-RELEASE-13773626 →	3.8.0-RELEASE-14039492

5   Click **Finish**.

What to do next

The remaining upgrade bundles are now available for download. Download them right away, or schedule them to be downloaded.

Apply the Configuration Drift Bundle

The configuration drift bundle applies the configuration required for Cloud Foundation version 3.9.

You can only apply the configuration drift bundle after you have applied the Cloud Foundation upgrade bundle.

Prerequisites

You must have downloaded the configuration drift bundle. See Download Bundles.

Procedure

1   Navigate to the Updates/Patches tab of the management domain.

2   Run the upgrade precheck. See Perform Upgrade Precheck.

3   In the Available Updates section, click **Update Now** or **Schedule Update** for the bundle and click the date and time for the bundle to be applied.

After the upgrade is completed, a green bar with a check mark is displayed.

What to do next

During the migration upgrade, the certificate that is installed on the source SDDC Manager VM does not get automatically migrated. A new SDDC Manager VM gets deployed as part of the migration upgrade. While a certificate that is already installed on the source VM cannot be automatically migrated to a new VM, a VMCA issued certificate gets automatically installed on the newly deployed SDDC Manager VM. But, if you have installed any custom certificate in the SDDC Manager VM before the upgrade and require to have the similar certificate on the SDDC Manager VM post upgrade, then you must install the certificate on SDDC Manager VM again. To install the certificate on SDDC Manager VM, see Managing Certificates for Cloud Foundation Components.

Upgrade Enterprise PKS Workload Domains

Upgrading Enterprise PKS to version 1.5 is a manual process. You must upgrade Enterprise PKS workload domains in your environment before upgrading NSX-T workload domains to version 2.5.

Procedure

1   Download Ubuntu Xenial Stemcell 315.82 and upload it to operations manager. See https://docs.pivotal.io/pks/1-5/upgrade-pks.html#stemcell.

2   Upgrade Enterprise PKS to version 1.5. See https://docs.pivotal.io/pks/1-5/upgrade-pks.html#upgrade-tile.

3   Apply Changes to the Enterprise PKS tile. See https://docs.pivotal.io/pks/1-5/upgrade-pks.html#apply-changes.

What to do next

Refer to https://docs.pivotal.io/pks/1-5/upgrade-pks.html#after-upgrade for information on verifying the upgrade.

Upgrade NSX-T Workload Domains

Read this section only if you have NSX-T based VI workload domains in your environment. If you have both NSX for vSphere and NSX-T workload domains in your environment, you can upgrade them in any order.

Applying the NSX-T bundle on a workload domain upgrades NSX-T 2.4.2 to 2.5. The upgrade is sequential and the components are upgraded in the following order:

1 Upgrade coordinator

2 Host clusters

3 NSX-T Edge clusters

4 NSX-T Managers

All NSX-T workload domains share the NSX-T instance, so you cannot perform any operations on the NSX-T workload domains while NSX-T is being upgraded.

Cloud Foundation supports both NSX-T 2.4.2 and 2.5. You do not need to upgrade to NSX-T 2.5 unless you want to deploy a new NSX-T based workload domain.

Prerequisites

▪ All applicable updates must have been applied to all NSX-T workload domains for the NSX-T upgrade bundle to be available for download. Otherwise, the status of the NSX-T bundle is displayed as Pending instead of Available for all workload domains.

▪ You must have downloaded the NSX-T upgrade bundle. See Download Bundles.

Procedure

Procedure

1 Navigate to the Updates/Patches tab of an NSX-T domain.

   Note that although you are upgrading NSX-T from the workload domain you have navigated to, all operations are performed on all NSX-T domains in your environment.

2 Run the upgrade precheck. See Perform Upgrade Precheck.

   The NSX-T precheck is run on all NSX-T workload domains in your environment.

3 In the Available Updates section, click **Update Now** or **Schedule Update** for NSX-T bundle and click the date and time for the bundle to be applied.

   The NSX-T Upgrade Confirmation dialog box appears.

4 Click **Confirm**.

The NSX-T upgrade begins and the upgrade components are displayed. The upgrade view displayed here pertains to the workload domain where you applied the bundle. Click the link to the associated workload domains to see the components pertaining to those workload domains.

If a component upgrade fails, the failure is displayed across all associated workload domains. Resolve the issue and retry the failed task.

Results

When all NSX-T components are upgraded successfully, a message with a green background and check mark is displayed.

What to do next

Before using the composability feature, import the Redfish certificate from the Redfish VM to SDDC Manager VM. For more information, see the VMware Cloud Foundation Operations and Administration Guide.

Upgrade ESXi by Cluster 6

If you have multiple clusters in the management domain or in a workload domain, you can upgrade ESXi at a cluster level. You can use this feature when upgrading to a release or a patch that needs an ESXi upgrade.

Prerequisites

Ensure that the domain for which you want to perform cluster-level upgrade does not have any hosts or clusters in an error state. Resolve the error state or remove the hosts and clusters with errors before proceeding.

Procedure

1   Navigate to the Updates/Patches tab of the appropriate domain.

2   Run the upgrade precheck. For Cloud Foundation 3.9, see Upgrade Prerequisites for 3.9. For Cloud Foundation 3.9.1, see Upgrade Prequisites for 3.9.1.

    If the clusters in your workload domain have different hardware, you can run a precheck at the cluster level using the `precheck` API. For information on this API, select **Developer Center** in the left panel on the SDDC Manager Dashboard and then search for `precheck` in the Overview tab.

3   The Available Updates section displays the bundle that you downloaded before starting the upgrade.

4   Click **View Details**,

The Resource Changes section displays the cluster in the workload domain and the number of hosts where ESXi is to be upgraded.

5   Click **Exit Details**.

6   Click **Update Now** or **Schedule Update** and select the date and time for the bundle to be applied.

7   Select **Enable Cluster-level selection** if you want to upgrade ESXi by cluster.

8   Select the cluster where you want to upgrade ESXi and click **Next**.

9   If you had clicked Schedule Update in step 6, select the start date and time for the upgrade.

10 On the Review page, click **Finish**.

The Cloud Foundation Update Status window displays the upgrade status. Click **View Update Activity** to view the detailed tasks.

After the upgrade is completed, a green bar with a check mark is displayed.

Upgrade ESXi with Custom ISO or Async Drivers

<div style="text-align: right">7</div>

You can perform ESXi upgrades with custom images and async drivers.

This chapter includes the following topics:

- Upgrade ESXi with Custom ISO
- Upgrade ESXi with Cloud Foundation Stock ISO and Async Drivers

Upgrade ESXi with Custom ISO

You can upgrade ESXi with a custom ISO from your vendor. This feature is available for Cloud Foundation version 3.5.1 and later.

Prerequisites

Download the appropriate vendor-specific ISO on a computer with internet access.

Procedure

1 Download the ESXi upgrade bundle. See Download Bundles from SDDC Manager.

2 Using SSH, log in to the SDDC Manager VM.

3 Create a directory for the vendor ISO under the `/nfs/vmware/vcf/nfs-mount` directory. For example, `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries`.

4 Copy the vendor-specific ISO to the directory you created on the SDDC Manager VM. For example, you can copy the ISO to the `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries` directory.

5 Change permissions on the directory where you copied the ISO. For example,

    `chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/`

6 Change owner to vcf.

    `chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/`

7 Create an ESX custom image JSON using the following template.

    ```
    {
    "esxCustomImageSpecList": [{
    "bundleId": "ID",
    ```

```
"targetEsxVersion": "version",
"useVcfBundle": false,
"customIsoAbsolutePath": "Path_to_ISO"
}]
}
```

where

Parameter	Description and Example Value
bundleId	ID of the ESXi upgrade bundle you downloaded. You can retrieve the bundle ID by navigating to the **Repository > Bundles** page and clicking **View Details** to view the bundle ID. For example, 8c0de63d-b522-4db8-be6c-f1e0ab7ef554. **Note** If an incorrect bundle ID is provided, the upgrade will proceed with the Cloud Foundation stock ISO and replace the custom VIBs in your environment with the stock VIBs.
targetEsxVersion	ESXi version in the custom image to be applied.
useVcfBundle	Specifies whether the Cloud Foundation ESXi bundle is to be used for the upgrade. **Note** If you want to upgrade with a custom ISO image, ensure that this is set to false.
customIsoAbsolutePath	Path to the custom ISO file on the SDDC Manager VM. For example, /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/ VMware-ESXi-6.7.0-Update1-10302608-HPE-Gen9plus-670.U1.10.3.5.12-Oct2018.iso

Here is an example of a completed JSON template.

```
{
"esxCustomImageSpecList": [{
"bundleId": "8c0de63d-b522-4db8-be6c-f1e0ab7ef554",
"targetEsxVersion": "6.7.0-10302608",
"useVcfBundle": false,
"customIsoAbsolutePath":
"/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-binaries/VMware-ESXi-6.7.0-Update1-10302608-HPE-
Gen9plus-670.U1.10.3.5.12-Oct2018.iso"
}]
}
```

8   Save the JSON file as `esx-custom-image-upgrade-spec.json` in the `/nfs/vmware/vcf/nfs-mount`.

Note If the JSON file is not saved in the correct directory, the stock Cloud Foundation ISO is used for the upgrade and the custom VIBs are overwritten.

9   Set the correct permissions on the `/nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json` file:

`chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json`

`chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json`

10 Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.

11 In the `lcm.esx.upgrade.custom.image.spec=` parameter, add the path to the JSON file.

    For example, `lcm.esx.upgrade.custom.image.spec=/nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json`

12 On the SDDC Manager Dashboard, click **Inventory > Workload Domains**.

13 Click the management domain and then click **Updates/Patches**.

14 Schedule the ESXi upgrade bundle.

15 Monitor the upgrade progress. See Chapter 9 Monitor Updates.

16 After the upgrade is complete, confirm the ESXi version by clicking **Current Versions**. The ESXi hosts table displays the current ESXi version.

Upgrade ESXi with Cloud Foundation Stock ISO and Async Drivers

You can apply the stock ESXi upgrade bundle with specified async drivers. This feature is available for Cloud Foundation version 3.5.1 and later.

Prerequisites

Download the appropriate async drivers for your hardware on a computer with internet access.

Procedure

1 Download the Cloud Foundation ESXi upgrade bundle. See Download Bundles from SDDC Manager.

2 Using SSH, log in to the SDDC Manager VM.

3 Create a directory for the vendor provided async drivers under the `/nfs/vmware/vcf/nfs-mount` directory. For example, `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers`.

4 Copy the async drivers to the directory you created on the SDDC Manager VM. For example, you can copy the drivers to the `/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers` directory.

5 Change permissions on the directory where you copied the drivers. For example,

    `chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers`

6 Change owner to vcf.

    `chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers`

7 Create an ESX custom image JSON using the following template.

```
{
"esxCustomImageSpecList": [{
"bundleId": "ID",
```

```
"useVcfBundle": true,
"esxPatchesAbsolutePaths": [
"Path_to_Drivers"
]
}]
}
```

where

Parameter	Description and Example Value
bundleId	ID of the ESXi upgrade bundle you downloaded. You can retrieve the bundle ID by navigating to the **Repository > Bundles** page and clicking **View Details** to view the bundle ID.
	For example, 8c0de63d-b522-4db8-be6c-f1e0ab7ef554.
	Cloud Foundation
targetEsxVersion	ESXi version in the custom image to be applied.
useVcfBundle	Specifies whether the ESXi bundle is to be used for the upgrade. Set this to true.
esxPatchesAbsolutePaths	Path to the async drivers on the SDDC Manager VM. For example, /nfs/ vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers/VMW- ESX-6.7.0-smartpqi-1.0.2.1038-offline_bundle-8984687.zip

Here is an example of a completed JSON template.

```
{
"esxCustomImageSpecList": [{
"bundleId": "8c0de63d-b522-4db8-be6c-f1e0ab7ef554",
"useVcfBundle": true,
"esxPatchesAbsolutePaths": [
"/nfs/vmware/vcf/nfs-mount/esx-upgrade-partner-drivers/drivers/VMW-ESX-6.7.0-smartpqi-1.0.2.1038-
offline_bundle-8984687.zip"
]
}]
}
```

8 Save the JSON file as esx-custom-image-upgrade-spec.json in the /nfs/vmware/vcf/nfs-mount.

Note If the JSON file is not saved in the correct directory, the stock Cloud Foundation ISO is used for the upgrade and the custom VIBs are overwritten.

9 Set the correct permissions on the /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json file:

chmod -R 775 /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json

chown -R vcf_lcm:vcf /nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json

10 Open the /opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties file.

11 In the `lcm.esx.upgrade.custom.image.spec=` parameter, add the path to the JSON file.

For example, `lcm.esx.upgrade.custom.image.spec=/nfs/vmware/vcf/nfs-mount/esx-custom-image-upgrade-spec.json`

12 On the SDDC Manager Dashboard, click **Inventory > Workload Domains**.

13 Click the management domain and then click **Updates/Patches**.

14 Schedule the ESXi upgrade bundle.

15 Monitor the upgrade progress. See Chapter 9 Monitor Updates.

16 After the upgrade is complete, confirm the ESXi version by clicking **Current Versions**. The ESXi hosts table displays the current ESXi version.

Skip Hosts During ESXi Update

You can skip hosts while applying an ESXi update to the management domain or a VI workload domain. The skipped hosts are not updated.

Procedure

1   Retrieve the host IDs for the hosts you want to skip.

    a   Open a new tab in the browser where you are running SDDC Manager and type the following URL:

       `https://`*SDDC_Manager_IP*`/inventory/hosts`

       Log in as `admin` using the password you specified for the SDDC Manager REST API user.

       Here is a sample output:

```
{
"vcenterId": "d1a239e1-baef-11e8-a2de-d1b89736a031",
"networkPoolId": "d3643003-c854-43e7-91ad-fd8d0711a02f",
"bundleRepoDatastore": "lcm-bundle-repo",
"domainId": "d0ef8bb0-baef-11e8-a2de-d1b89736a031",
"clusterId": "d1b106f1-baef-11e8-a2de-d1b89736a031",
"vsanIpAddress": "10.0.4.3",
"vmotionIpAddress": "10.0.8.3",
"hostAttributes": {},
"dirty": false,
"id": "d19d57e1-baef-11e8-a2de-d1b89736a031",
"status": "ACTIVE",
"version": "6.5.0-9298722",
"hostName": "esxi-1.vrack.vsphere.local",
"privateIpAddress": "10.0.0.100",
"managementIpAddress": "10.0.0.100"
}
```

    b   Copy the appropriate host IDs.

2   Using SSH, log in to the SDDC Manager VM with the user name `vcf` and password you specified in the deployment parameter sheet.

3   Type `su` to switch to the root account.

4   Open the `/opt/vmware/vcf/lcm/lcm-app/conf/application-prod.properties` file.

5 At the end of the file , add the following line:

`esx.upgrade.skip.host.ids=`*host id1*`,`*host id2*

6 Save and close the file.

7 Restart the LCM server by typing the following command in the console window:

`systemctl restart lcm`

Results

The hosts added to the `application-prod.properties` are not updated when you update the workload domain.

Monitor Updates

9

Monitor the update progress for your workload domain

Procedure

1 The Update in Progress section in the workload domain detail page displays the high level update progress and the number of components to be updated.

2 Details of the component being updated is shown below that. The image below is an example and may not reflect the correct versions.
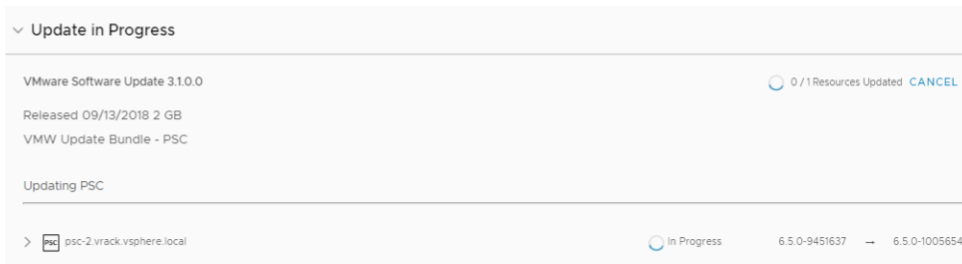
3 Click the arrow to see a list of tasks being performed to update the component. As the task is completed, it shows a green check mark.
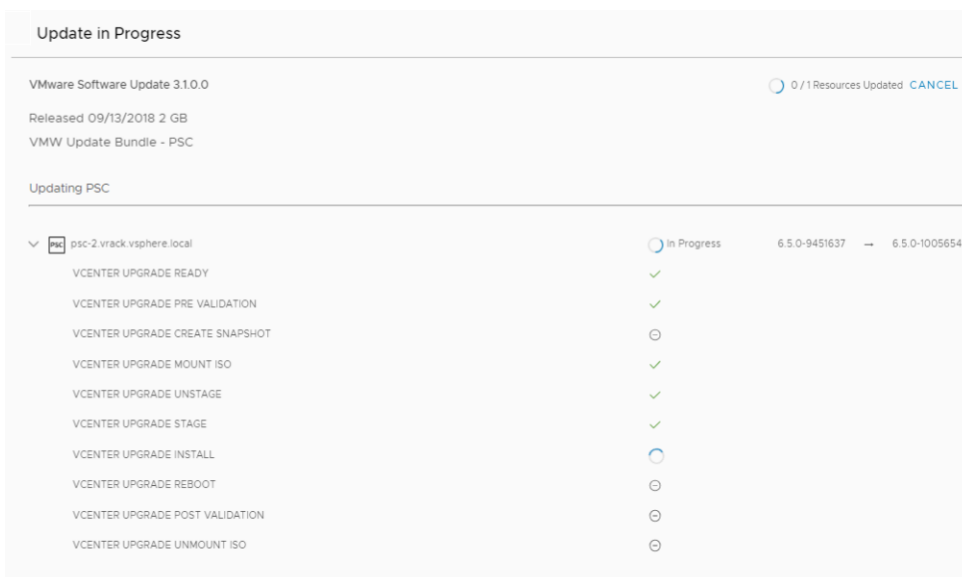
4   When all tasks to update a component have been completed, the update status for the component is displayed as Updated.

5   If a component fails to be updated, the status is displayed as Failed. The reason for the failure as well as remediation steps are displayed. The image below is an example and may not reflect the correct versions.
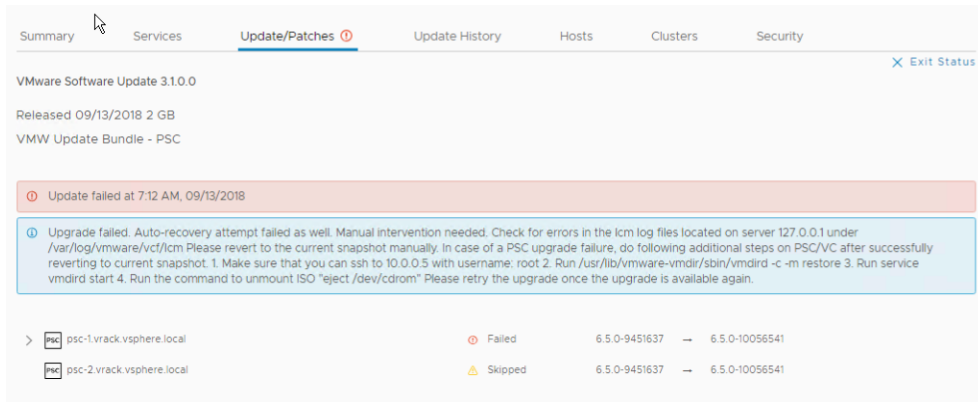
6   After you resolve the issues, the bundle becomes available. You can then apply the bundle or schedule it to be applied at a specific date and time.

What to do next

1   Remove the VM snapshots you had taken before starting the update.

2   Take a backup of the newly installed components.

View Upgrade History

10

The Update History page displays all upgrades applied to a workload domain.

Procedure

1   In the SDDC Manager Dashboard, click **Inventory > Workload Domains**..

2   Click the name of a workload domain and then click the **Updates History** tab.

   All updates applied to this workload domain are displayed. If an update bundle was applied more than once, click **View Past Attempts** to see more information.

Access Upgrade Log Files

11

1   Log in to the SDDC Manager VM with the `vcf` user name and the password you specified in the deployment parameter sheet.

2   To access upgrade logs, navigate to the `/var/log/vmware/vcf/lcm` directory.

    ■   `lcm-debug` log file contains debug level logging information.

    ■   `lcm.log` contains information level logging.

3   To create an sos bundle for support, see Supportability and Serviceability (SoS) Utility in the *VMware Cloud Foundation Operations and Administration Guide*.